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THE LAW OFFICE OF KIRK D. WILLIAMS
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EXAMINER
CHEN, TSE W

ART UNIT	PAPER NUMBER
2116	

DATE MAILED: 11/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- . Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>08 January 2002</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-29</u> is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) <u>1-29</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>08 January 2002</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
   application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

DETAILED ACTION

Information Disclosure Statement

1.   The information disclosure statement (IDS) submitted on January 8, 2002 was filed

before the mailing date of the first Office Action. The submission is in compliance with the

provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being

considered by the examiner.

Claim Objections

2.   Claims 2, 8, 11, 16 are objected to because of the following informalities:

*   As per claim 2, "apparatus of claim 2" should be "apparatus of claim 1".

*   As per claim 8, "second remote image" on line 6 should be "second remote boot image".

*   As per claim 11, "to the access first remote boot" should be "to access the first remote

    boot".

*   As per claim 16, "the master controller" should be "the master system controller".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4.   Claims 1-3, 20-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Rahman et

al., US Patent 5539890, hereinafter Rahman.

5.   In re claim 1, Rahman discloses an apparatus [processor system 10] comprising:

- A master system [microprocessor 12(0), maintenance diagnostic chip 14, and other

  associated circuitries/units such as memory 22].

- A slave system [microprocessor 12(1) and other associated circuitries/units] including a

  programmable interface [processor interface chip 16] coupled to the master system [fig.1;

  col.2, ll.42-61].

- A storage mechanism [memory 22, memory interface chip 20, and other associated

  circuitries/units], external to and coupled to the programmable interface, for storing a

  remote boot image [fig.1; col.10, ll.17-41].

- Wherein the master system is configured to update the programmable interface to retrieve

  the remote boot image [col.9, l.36 – col.10, l.41; mdc 14 updates register 220 in pic 16 to

  indicate where to retrieve boot image].

6.   As to claim 2, Rahman discloses the apparatus wherein the storage mechanism is a

memory [22] [col.2, ll.42-53].

7.   As to claim 3, Rahman discloses the apparatus wherein the master system includes the

storage mechanism [12(1) and 22 are part of master system] [col.3, ll.7-59].

8.   In re claim 20, Rahman discloses an apparatus [processor system 10] comprising:

- Means for redirecting a boot operation of a remote system [microprocessor 12(1) and

  other associated circuitries/units] [col.9, l.36 – col.10, l.41; mdc 14 updates register 220

  in pic 16 to indicate where to retrieve boot image].

- Means for storing a remote boot image [col.10, ll.17-41; memory 22 and other associated circuitries/units].

- Means for providing the remote boot image to the remote system [col.1, l.56 – col.2, l.9; col.5, l.59 – col.6, l.5].

9. As to claim 21, Rahman discloses the apparatus wherein said means for redirecting [pic 16] and said means for storing are included in separate systems of the apparatus [fig.1; col.2, ll.42-61].

10. As to claim 22, Rahman discloses the apparatus wherein said means for storing the remote boot image includes a file server [memory 22] [col.10, ll.17-41; boot codes are files].

11. Claims 13-14, 18-19, 23-25, 28-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Haigh et al., US Publication 20020087854, hereinafter Haigh.

12. In re claim 13, Haigh discloses a method comprising:

- Booting a master system [host 101] [pt.0026].

- Programming a slave controller to [code 218] to relay a boot request [command 214] from a slave processor [single board computer 100] to a master system controller [device driver 228] [pt.0025, 0029].

- Programming the master system controller to relay the boot request to a storage mechanism [disk 201] [pt.0029].

- Programming the master system controller to relay a boot image from the storage mechanism to the slave controller [pt.0029-30].

- Programming the slave controller to relay the boot image to the slave processor or memory associated with the slave processor [pt.0030].

- Booting the slave processor with the boot image [pt.0031].

13.   As to claim 14, Haigh discloses the method wherein said programming the slave

controller to relay the boot request includes assigning one or more addresses to the slave

controller [pt.25,30; address is needed to send information back to slave].

14.   As to claim 18, Haigh discloses the method comprising determining a corresponding boot

software for the slave processor [pt.0022-24, 0033].

15.   As to claim 19, Haigh discloses the method comprising identifying the slave processor

[pt.0029; identify the slave in order to retrieve an forward information].

16.   In re claim 23, Haigh discloses an apparatus [fig.1-3] comprising:

- A first remote system [sbc 303] including a first means for booting [pt.0023-25, 0033-
  34].

- A second remote system [sbc 304] including a second means for booting [pt.0023-25,
  0033-34].

- A master system [sbc 302] coupled to the first and second remote systems, the master
  system including [fig.3];

- Means for storing a first remote boot image and a second remote image [disk 301;
  pt.0022—23, 0033-34; disk portions store associated sbc images].

- Means for redirecting a boot operation of the first remote system to the first remote boot
  image [pt.0022-25, 29, 33-36; 302 retrieves image from disk portion associated with sbc].

- Means for redirecting a boot operation of a second remote system to the second remote
  boot image [pt.0022-25, 29, 33-36; 302 retrieves image from disk portion associated with
  sbc].

17.   In re claim 24, Haigh discloses a method comprising:

- Means for booting a master system [host 101] [pt.0026].

- Means for programming a slave controller to [code 218] to relay a boot request [command 214] from a slave processor [single board computer 100] to a master system controller [device driver 228] [pt.0025, 0029].

- Means for programming the master system controller to relay the boot request to a storage mechanism [disk 201] [pt.0029].

- Means for programming the master system controller to relay a boot image from the storage mechanism to the slave controller [pt.0029-30].

- Means for programming the slave controller to relay the boot image to the slave processor or memory associated with the slave processor [pt.0030].

- Means for booting the slave processor with the boot image [pt.0031].

18.   As to claim 25, Haigh discloses each and every limitation of the claim as discussed above in reference to claims 14 and 24.

19.   As to claim 28, Haigh discloses each and every limitation of the claim as discussed above in reference to claims 18 and 24.

20.   As to claim 29, Haigh discloses each and every limitation of the claim as discussed above in reference to claims 19 and 24.

Claim Rejections - 35 USC § 103

21.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

22.   Claims 4-5, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rahman as applied to claims 1 and 3 above, and further in view of Haigh.

23.   In re claim 4, Rahman discloses each and every limitation of the claim as discussed above in reference to claim 3. In particular, Rahman discloses the apparatus wherein the programmable interface [16] includes a system controller [boot address relocator 194] and wherein the master system is configured to update the system controller [col.9, ll.36-65]. Rahman did not discuss redirecting a boot image retrieval request from the slave system to the master system.

24.   Haigh discloses an apparatus [fig.1] wherein the programmable interface [bus master interface 230] includes a system controller [code 218] to redirect a boot image retrieval request [command 214] from the slave system [client 100] to the master system [host 101] [pt.0025].

25.   It would have been obvious to one of ordinary skill in the art, having the teachings of Rahman and Haigh before him at the time the invention was made, to modify the apparatus taught by Rahman to include the system controller taught by Haigh, in order to obtain the apparatus wherein the programmable interface includes a system controller and wherein the master system is configured to update the system controller to redirect a boot image retrieval request from the slave system to the master system. One of ordinary skill in the art would have been motivated to make such a combination as it provides a way to reduce overhead and maintenance in a network system [Haigh: pt.0003-0016].

26.   As to claim 5, Haigh discloses the apparatus wherein he master system [101] includes a master system controller [device driver 228] and wherein the master system is further configured

to program the master system controller to redirect the boot image retrieval request to the storage mechanism [disk 201] [pt.0029].

27. As to claim 7, Haigh discloses the apparatus comprising a boot image server [101] coupled to the programmable interface [230] and wherein the boot image server includes the storage mechanism [201] [fig.2; pt.0020-0023].

28. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rahman to claim 1 above, and further in view of Jones et al., US Patent 6757759, hereinafter Jones.

29. Rahman discloses each and every limitation of the claim as discussed above in reference to claim 1. Rahman did not discuss a second slave system.

30. Jones discloses an apparatus [fig.1] comprising a second slave system [cpu 13] coupled to the programmable interface [link 30 and associated circuitries/units] and wherein the second slave system includes a storage mechanism [local memory 120] [col.13, ll.1-52].

31. It would have been obvious to one of ordinary skill in the art, having the teachings of Rahman and Jones before him at the time the invention was made, to modify the apparatus taught by Rahman to include the second slave system taught by Jones, in order to obtain the apparatus comprising a second slave system coupled to the programmable interface and wherein the second slave system includes a storage mechanism. One of ordinary skill in the art would have been motivated to make such a combination as it provides a way to run multiple concurrent operations [Jones: col.14, ll.1-49].

32. Claims 8-12, 16-17, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haigh in view of Rahman.

33. In re claim 8, Haigh discloses an apparatus [fig.1-3] comprising:

- A master system [sbc 302] including a storage mechanism [disk 301] for storing a first

  remote boot image and a second remote boot image [pt.0022—23, 0033-34; disk portions

  store associated sbc images].

- A first slave system [sbc 303] including a first programmable interface [bmi 320 and

  associated circuitries/units] coupled to the master system [pt.0034].

- A second slave system [sbc 304] including a second programmable interface [bmi 320

  and associated circuitries/units] coupled to the master system [pt.0034].

- Wherein the master system is configured to retrieve the first remote boot image [pt.0022-

  23, 29, 33-36; 302 retrieves image from disk portion associated with sbc].

- Wherein the master system is configured to retrieve the second remote boot image

  [pt.0022-23, 29, 33-36; 302 retrieves image from disk portion associated with sbc].

34.   Haigh did not discuss the details of retrieving the different remote boot images.

35.   Rahman discloses an apparatus [processor system 10] comprising:

- A master system [microprocessor 12(0), maintenance diagnostic chip 14, and other

  associated circuitries/units such as memory 22] including a storage mechanism [memory

  22, memory interface chip 20, and other associated circuitries/units] for storing a remote

  boot image [fig.1; col.10, ll.17-41].

- Wherein the master system is configured to update a programmable interface to retrieve

  the remote boot image [col.9, l.36 – col.10, l.41; mdc 14 updates register 220 in pic 16 to

  indicate where to retrieve boot image].

36.   It would have been obvious to one of ordinary skill in the art, having the teachings of

Rahman and Haigh before him at the time the invention was made, to modify the apparatus

taught by Haigh to include the system controller taught by Rahman, in order to obtain the

apparatus comprising a master system including a storage mechanism for storing a first remote

boot image and a second remote boot image wherein the master system is configured to update

the first/second programmable interface to retrieve the first/second remote boot image. One of

ordinary skill in the art would have been motivated to make such a combination as it provides a

way to reduce overhead and maintenance in a network system [Haigh: pt.0003-0016].

37.   As to claim 9, Rahman and Haigh disclose each and every limitation of the claim as

discussed above in reference to claims 4 and 8.

38.   In particular, Haigh discloses the apparatus wherein the first programmable interface

[bmi 320 and associated circuitries/units] includes a first system controller [code 218 associated

with first slave system] to redirect a first boot image retrieval request [command 214 associated

with first slave system] from the first slave system [sbc 303] to the master system [sbc 302]

[pt.0025] while Rahman discloses the apparatus wherein the programmable interface [16]

includes a system controller [boot address relocator 194] and wherein the master system is

configured to update the system controller [col.9, ll.36-65].

39.   As to claim 10, Rahman and Haigh disclose each and every limitation of the claim as

discussed above in reference to claims 4 and 8.

40.   In particular, Haigh discloses the apparatus wherein the second programmable interface

[bmi 320 and associated circuitries/units] includes a second system controller [code 218

associated with second slave system] to redirect a first boot image retrieval request [command

214 associated with second slave system] from the second slave system [sbc 304] to the master

system [sbc 302] [pt.0025] while Rahman discloses the apparatus wherein the programmable

interface [16] includes a system controller [boot address relocator 194] and wherein the master

system is configured to update the system controller [col.9, ll.36-65].

41.   As to claim 11, Haigh and Rahman disclose each and every limitation of the claim as

discussed above in reference to claims 5 and 8. In particular, Haigh discloses the apparatus

wherein the master system [101, 302] includes a master system controller [device driver 228]

and wherein the master system is further configured to program the master system controller to

redirect the first boot image retrieval request to access the first remote boot image in the storage

mechanism [disk 201] [pt.0029].

42.   As to claim 12, Haigh and Rahman disclose each and every limitation of the claim as

discussed above in reference to claims 5 and 11. In particular, Haigh discloses the master system

[101, 302] that is further configured to program the master system controller [device driver 228]

to redirect the second boot image retrieval request to access the second remote boot image in the

storage mechanism [disk 201] [pt.0029].

43.   In re claim 16, Haigh discloses each and every limitation of the claim as discussed above

in reference to claim 13. Haigh did not discuss the details of the master controller.

44.   Rahman discloses the method wherein a programming of the master system controller

[boot address relocator 194] to relay the boot request includes programming the master system

controller to redirect slave boot addresses [col.9, l.36 – col.10, l.41; change register 220].

45.   It would have been obvious to one of ordinary skill in the art, having the teachings of

Rahman and Haigh before him at the time the invention was made, to modify the apparatus

taught by Haigh to include the teachings of Rahman, in order to obtain the method wherein a

programming of the master system controller to relay the boot request includes programming the

master system controller to redirect slave boot addresses. One of ordinary skill in the art would have been motivated to make such a combination as it provides a way to reduce overhead and maintenance in a network system [Haigh: pt.0003-0016].

46.   In re claim 17, Haigh discloses each and every limitation of the claim as discussed above in reference to claim 13. Haigh did not discuss a reset condition.

47.   Rahman discloses the method comprising releasing [deasserting] the slave processor [microprocessor 12(1)] from a reset condition [col.5, 1.65 – col.6, 1.5].

48.   It would have been obvious to one of ordinary skill in the art, having the teachings of Rahman and Haigh before him at the time the invention was made, to include the teachings of Rahman as the reset is a well-known condition used in an apparatus of Haigh. One of ordinary skill in the art would have been motivated to make such a combination as it provides a way to reset a system for booting [Jones: col.13, ll.1-52].

49.   As to claim 27, Haigh and Jones disclose each and every limitation as discussed above in reference to claims 16 and 24.

50.   Claims 15 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haigh as applied to claim13 above, and further in view of Jones.

51.   In re claim 15, Haigh discloses each and every limitation as discussed above in reference to claim 13. Haigh did not discuss the details of the slave controller.

52.   Jones discloses the method wherein a programming of the slave controller [associated circuitries/units of cpu 12 or 13] to relay a boot request includes programming the slave controller to allow access to one or more internal registers [119] of the slave controller [col.13, ll.1-52].

53.   It would have been obvious to one of ordinary skill in the art, having the teachings of

Haigh and Jones before him at the time the invention was made, to use the teachings of Jones for

the slave controller disclosed by Haigh as the accessing of internal registers is a well known way

to transfer information in an apparatus of Haigh. One of ordinary skill in the art would have been

motivated to make such a combination as it provides a way to transfer information between

systems [Jones: col.13, ll.1-52; e.g., target boot address].

54.   As to claim 26, Haigh and Jones disclose each and every limitation as discussed above in

reference to claims 15 and 24.

Conclusion

55.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. The additionally cited U.S. patent documents describe various methods and systems

for remote booting including various well-known concepts in the art.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Tse Chen whose telephone number is (571) 272-3672. The

examiner can normally be reached on Monday - Friday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Lynne Browne can be reached on (571) 272-3670. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

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system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tse Chen
November 5, 2004

REHANA PERVEEN
PRIMARY EXAMINER